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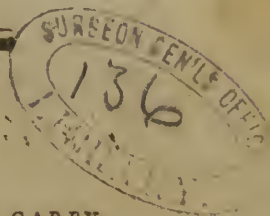
AN ENQUIRY
INTO THE ORIGIN OF THE LATE
EPIDEMIC FEVER
IN PHILADELPHIA:

IN A LETTER TO
DR. JOHN REDMAN,
PRESIDENT OF THE COLLEGE OF PHYSICIANS,
FROM
DOCTOR BENJAMIN RUSH.

PHILADELPHIA:

FROM THE PRESS OF MATHEW CAREY.

December 11, 1793.





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AN ENQUIRY, &c.

DEAR SIR,

HAVING publickly asserted, that I believed our late Epidemic Fever to have been generated in our city, I herewith enclose you my reasons for that opinion, accompanied by a wish that they may be laid before the public; for I conceive they are extremely interesting, both to our city, and to the United States.

These reasons are, as follows:—

1. The Yellow Fever in the West Indies, and in all other countries where it is endemic, is the offspring of vegetable putrefaction.

2. The same causes (under like circumstances) must always produce the same effects. There is nothing in the air of the West Indies above other hot countries, which disposes it to produce a yellow fever. Similar degrees of heat acting upon dead and moist vegetable matters, are capable of producing it, together with all its various modifications, in every part of the world. In support of this opinion, I shall transcribe a part of a letter I received a few weeks ago from Dr. Miller, of the Delaware state—a gentleman whose authority in medicine is second to no man's in the United States.

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“ Dover, Nov. 5, 1793.

“ Dear Sir,

“ Since the middle of last July, we have had a Bilious Calic epidemic in this neighborhood which exhibits phænomena very singular in this climate ; and so far as I am informed, unprecedented in the medical records, or popular tradition of this country. To avoid unnecessary details, it will suffice at present to observe, that the disease, on this occasion, has assumed not only all the essential characters, but likewise all the violence, obstinacy and malignity described by the East and West Indian practitioners. If any difference can be observed, it seems here to manifest higher degrees of stubbornness and malignity, than we usually meet in the histories of tropical writers. In the course of the disease, not only extreme constipation, frequent vomiting, and the most excruciating pains of the bowels and limbs, harraßs the unhappy patient ; but to these succeed paralysis, convulsions, &c. and almost always uncommon muscular debility,—oppression of the præcordia, &c. are the consequence of a severe attack. Bile discharged in enormous quantities, constantly assumes the most corrupted and acrimonious appearances, commonly æruginous in a very high degree, and sometimes quite atrabilious.

“ The inference I mean to draw from the phænomena of this disease, as it appears in this neighborhood, and which I presume will also apply to your epidemic, is THIS, that from the uncommon protraction, and intenseness of our summer and autumnal heats, but principally from the unusual drought ; we have had since the middle of July, a near approach to a TROPICAL season, and that of consequence we ought not to be surprisid if tropical diseases, even of the most malignant nature, are ENGENDERED amongst us.”

To the above information, it may be added, that the bilious fever and dysentery, which prevailed during the late autumn in several of the villages of Pennsylvania, particularly in Harrisburgh and Hummilstown, were attended with a malignity and mortality unknown before in any part of the state. I need not pause to remark, that this dysentery arose from putrid exhalations, and that it is like the bilious cholic, only a modification of one original Genus of bilious fever.

But further—a malignant fever, resembling that which has prevailed in our city, has appeared on Pensocken and on Walkill creeks, in New-Jersey; at NewGalloway, in the state of New-York—and at Weathersfield in Connecticut, during the late autumnal months, into none of which places was there a suspicion of the disease having been imported from abroad, or conveyed by an intercourse with the city of Philadelphia.

It is no objection to the inference which follows from these facts, that the common remitting fever was not known during the above period in the neighborhood of this city, and in many other parts of the state, where it had usually appeared in the autumnal months. There is a certain combination of moisture with heat, which is essential to the production of the remote cause of a bilious fever. Where the heat is so intense, or of such long duration, as wholly to dissipate moisture, or when the rains are so great as totally to overflow the marshy ground, or to wash away putrid masses of matter, no fever can be produced.

Dr. Dazilles, in his treatise upon the diseases of the negroes in the West Indies, informs us, that the RAINY season is the most healthy at Cayenne, owing to the neighboring morasses

being DEEPLY overflowed—whereas at St. Domingo, a DRY season is most productive of diseases ; owing to its favouring those degrees of moisture which produce morbid exhalations. These facts will explain the reason why, in certain seasons, places which are naturally healthy in our country, become sickly, while those places which are naturally sickly escape the prevailing epidemic. Previously to the dissipation of the moisture from the putrid masses of vegetable matters in our streets, and in the neighbourhood of the city, there were (as several practitioners can testify) many cases of mild remittents, but they all disappeared about the first week in September.

3. A quantity of damaged coffee, was exposed at a time (July the 24th) and in a situation (on a wharf, and in a dock) which favoured its putrefaction, and exhalation. Its smell was highly putrid and offensive, inasmuch that the inhabitants of the houses in Water and Front Streets, who were near it, were obliged in the hottest weather to exclude it, by shutting their doors and windows. Even persons, who only walked along those streets, complained of an intolerable fœtor, which upon enquiring was constantly traced to the putrid coffee. It should not surprize us, that this seed, so inoffensive in its natural state, should produce, after its putrefaction, a violent fever. The records of medicine furnish instances of similar fevers being produced, by the putrefaction of many other vegetable substances. Fourteen men out of sixteen, perished by a malignant fever, a few years ago, at the island of Tortola, from the effluvia generated by some putrefied Potatoes, which were taken out of the hold of a Liverpool vessel. “ The effluvia (says Dr. Zimmerman) from a little heap of flax, has been known to occasion a malignant fever, which proved fatal to the family, in which it first began, and

afterwards spread its *contagion* through a whole country." Dr. Rodgers in his treatise upon the diseases of Cork, mentions a malignant fever which swept away a great number of the Students of Wadham College in Oxford. "The singularity of the case (adds the Doctor) engaged all the gentlemen of the faculty, in a serious inquiry into the causes of so remarkable an effect, and all agreed that the *contagious* infection arose from the putrefaction of a vast quantity of Cabbages thrown into a heap out of the several gardens near the College." Lancissi relates, that one end of the city of Rome was nearly desolated by the effluvia of some rotted hemp, which lay in the neighbourhood of the city. The same author remarks, that "fevers often prevail at Constantinople, which owe their origin to the hemp which is brought from Cairo, and which is put wet into the public granaries, and suffered to ferment during the summer. It is afterwards sold, and the seeds of those diseases are afterwards spread among the people."—Many other facts might be adduced of radishes, turnips, garlic, and sundry other vegetables, generating by putrefaction, fevers, similar to those which have been mentioned.

4. The rapid progress of the fever from Water street, and the courses through which it travelled into other parts of the city, afford a strong evidence that it was at first propagated chiefly by exhalation from the putrid coffee. It is remarkable that it passed first through those alleys and streets, which were in the course of the winds that blew across the dock and wharf where the coffee lay, and that persons were affected at a much greater distance from Water street by that means, than was afterwards known by means of the contagion which was generated by infected persons.

5. Many persons who had worked, or even visited in the neighbourhood of the exhalation from the coffee, early in the month of August, were indisposed afterwards with sickness, puking, and yellow sweats, long before the air of Water street was so much impregnated with the contagion, as to produce such effects; and several patients whom I attended in the yellow fever declared to me, or to their friends, that their indispositions began exactly at the time they inhaled the offensive effluvia of the coffee.

6. The strictest inquiry, accompanied with the greatest solicitude for proofs, has not been able to discover any other cause of our late Epidemic. Every account of the importation of the disease, has been discovered upon examination to be inaccurate, contradictory and without foundation. The first cases of the yellow fever have been clearly traced to the sailors of the vessel who were first exposed to the effluvia of the Coffee. Their sickness commenced with the day on which the coffee began to emit its putrid smell. The disease spread with the increase of the poisonous exhalation. A journeyman of Mr. Peter Brown's, who worked near the corner of Race and Water streets, caught the disease on the 27th of July. Elizabeth Hill the wife of a fisherman was infected by only sailing near the pestilential wharf, about the first of August, and died at Kensington on the 14th of the same month. Many other names might be mentioned of persons who sickened during the last week in July or the first week in August, who ascribed their illnesses to the smell of the coffee. From two of those persons who came under my notice, the disease was evidently propagated by contagion: from one of them, to nearly a whole family—and from the other to a girl of eight years old, who was led by curiosity to examine the

low colour which it was said had appeared in the face of the infected person, after death.

7. It has been remarked that this fever did not spread in the country, when carried there by persons who were infected, and who afterwards died with it. This I conceive was occasioned, in part by the contagion being deprived of the aid of miasmata from the putrid matter which first produced it in our city, and in part, by its being diluted, and thereby weakened by the pure air of the country. During four times in which it prevailed in Charleston, in no one instance, according to Dr. Lining, was it propagated in any other part of the state.

8. It is very remarkable that in the histories of the disorder which have been preserved in this country, it has *seven* times appeared about the first or middle of August, and declined, or ceased about the middle of October—viz. in 1732, 1739, 1745 and 1748 in Charleston—in 1791 in New-York, and in 1762 and 1793 in Philadelphia. This frequent occurrence of the yellow fever at the usual period of our common bilious remittents, cannot be ascribed to accidental coincidence, but must be resolved in most cases into the combination of more active miasmata with the predisposition of a tropical season. In speaking of a tropical season, I include that kind of weather in which rains and heats are alternated with each other, as well as that, which is uniformly warm.

9. Several circumstances attended the late epidemic, which do not occur in the West-India yellow fever. It affected children as well as adults in common with our annual bilious fevers. In the West-Indies Dr. Hume tells us it never attacked any person under puberty. It had moreover many peculiar symptoms:

(as I hope to shew in a future publication) which are not to be met with in any of the histories of the West-India yellow fever.

10. Why should it surprize us to see a yellow fever generated amongst us? It is only a higher grade of a fever which prevails every year in our city, from vegetable putrefaction. It conforms, in the difference of its degrees of violence and danger, to season, as well as climate, and in this respect it is upon a footing with the small-pox, the measles, the sore throat, and several other diseases. There are few years pass, in which a plethoric habit, and more active but limited miasmata, do not produce Sporadic Cases, of true yellow fever in Philadelphia. It is very common in South and North Carolina and in Virginia, and there are facts which prove, that not only strangers, but native individuals, and in one instance, a whole family have been carried off by it in the state of Maryland. It proved fatal to One hundred persons in the city of New-York in the year of 1791, where it was evidently generated by putrid exhalation. The yellow color of the skin, has unfortunately too often been considered as the characteristic mark of this fever, otherwise many other instances of its prevalence might be discovered, I have no doubt in every part of the United States. I wish with Dr. Mosely, the term *yellow*, could be abolished from the titles of this fever, for this color is not only frequently absent, but sometimes occurs in the mildest bilious remittents. Dr. Haller in his pathology describes an epidemic of this kind in Swisserland, in which this colour generally attended, and I have once seen it almost universal in a common bilious fever which prevailed in the Americam army in the year 1776.

If any thing could surprize me after reading the public report

of our late fever having been imported, in spite of every possible evidence to the contrary, it would be, the opinion which has been publicly delivered by several medical gentlemen, that no fever produced by vegetable putrefaction and exhalation had ever been contagious. The fevers generated by putrid cabbage mentioned by Dr. Rodgers, and by putrid flax mentioned by Dr. Zimmerman, were both contagious. The late Dr. Wilson of Lew-estown, in Delaware state, in his history of a malignant fever, in Suffex county, published in the United States Magazine for April, 1775, after tracing its cause to exhalations from savannahs or ponds, after a dry season, expressly mentions that it was contagious. "Some (he says) were taken ill a few days after they had seen the sick, but especially after they had been at the interring the dead. Some went a week, and some perhaps a fortnight, and a few took it from the air, without going nigh the sick." I have seen a bilious fever, received by contagion, in a case which came under my notice in September, 1778; and there are many facts which make it probable, that the bilious, or, as it was commonly called, the break-bone-fever of 1780, was propagated, in many instances, through our city, by means of contagion. The malignant fever, which was lately generated at Wethersfield, in Connecticut, it is said was evidently contagious.—Even the intermitting fever, according to Doctor Clarke, has, in some instances, generated a morbid matter which has produced the disease in persons who had not been exposed to the usual remote cause of that disorder. A similar instance of an intermittent being propagated by contagion in Virginia was communicated to me a year ago by a medical gentleman in that country. In all the five last mentioned cases, the original disease which produced the contagion was generated by exhalations from putrid vegetable matters.

I am far from denying that this disease, has not sometimes been imported into our country. From the authority of Dr. Lind, and Dr. Mitchell, it appears that this has been the case in several instances. In this respect, it is upon a footing with the plague, which is both an imported and a generated disease, in the cities of the East. I am disposed however to believe that the instances of the yellow fever, being imported, are very few compared with those of its being generated in our country. What makes this opinion probable, is, that neither Great Britain, nor Ireland, have ever to my knowledge been infected by this fever, notwithstanding their long and frequent commercial intercourse with the West-India islands. The summers in each of those countries, though seldom *hot* enough to generate a contagious yellow, or bilious fever, are notwithstanding *warm* enough, to favour the propagation of an imported contagion of that disorder. The jail fever which has more than once been introduced into our city in crowded ships from Holland, I suspect has been sometimes mistaken for the yellow fever of the West-Indies.

I am aware that the opinion and facts which I have stated, are not popular with our citizens; but—I have not concealed them during the whole course of the disease, nor shall I cease to impress them upon the public mind at every hazard, not only as the result of my judgment, but as the dictates of my conscience, for I am persuaded they involve in their consequences the lives of millions that are yet unborn.—Commerce can no more be endangered than Religion, by the publication of Philosophical truth. On the contrary it must suffer most by the adoption of the traditional error which I have endeavoured to refute; for

while the cause of a malignant fever is obvious to the senses, it will be easy to guard against it; but while it is believed that the disease may be imported, and no body know from what *place*, at what *time*, and in *what manner*; we shall not only be careless in the midst of filth and danger, but our city will always hold its character for health by a timid and precarious tenure. I am the more disposed to expect forgiveness from my fellow citizens for this attempt to serve them, by the recollection of the sudden change in the health of our city which followed the arching the offensive dock between Front and Third streets in the year 1782. By advising that measure (in which I stood nearly alone) I incurred the censure of several valuable citizens. The bills of mortality however soon shewed that the measure was right, and I have since seen with great pleasure, the extraordinary healthiness of our city, ascribed by indifferent people, to that, among other causes.

The climate of our country can no more suffer than the commerce of our city, by this investigation, for it fixes the late fever, and all the other malignant fevers of the United States, upon putrid vegetable exhalation. Without the matrix of putrid vegetable matters, there can no more be a bilious, or yellow fever generated amongst us, than there can be vegetation without earth, water, or air. To ascribe our late disease therefore to the exclusive influence of the atmosphere, is a reflection upon our climate, which is equally unphilosophical and unjust.

Let it only be clearly proved, and boldly asserted, that a bilious yellow fever has been, and may be generated in our country, under the circumstances before mentioned, and the re-

turn of it, as also of common bilious, and intermitting fevers may every where be prevented by a due attention to the cleanliness of the wharves, and Suburbs, as well as the streets of our cities, and towns; by draining and cultivating marshy grounds in their neighbourhood, and in the neighbourhood of farm houses,—and where the last cannot be done, by sheltering them from the current of vegetable exhalations by means of a body of trees that are of speedy growth. In this manner, malignant and deadly fevers have been banished from most of the cities in Europe.

It has been said, that the opinion I have delivered upon the origin of our late fever has been accommodated to my mode of treating it: this is not true: my treatment of it would have been the same had I believed it to have been an imported disease.

I shall conclude this long letter with two observations.

1st. The principle of self love which is so extensive in its influence upon human actions, has unhappily corrupted the science of medicine; hence we find dangerous and loathsome diseases are considered by all nations, as of foreign extraction. Even the yellow fever itself in some parts of the West Indies, is denied to be a native of the Islands. It is said by many of their writers to have been imported from Siam in the East Indies.

2d. Medical, like religious superstition cleaves so closely to the human mind, that it often exists under new forms, and names, in spite of the cultivation and progress of reason: hence we find that malignant fevers, which in former ages were ascribed to celestial, planetary and demoniacal influence, are now with

the same superstitious indolence, and with as little truth, ascribed to *importation*, or to an *unknown something* in the air.

With great respect, and esteem, I am, Dear Sir, your sincere friend and former pupil,

BENJAMIN RUSH.

December 7th, 1793.

DR. JOHN REDMAN.

Med. Hist.

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